



---

# Level 3 Certificate

# MATHEMATICAL STUDIES

Paper 2A/2B/2C

June 2022

---

## Preliminary Material

To be opened and issued to candidates on  
Tuesday 1 March 2022 or as soon as possible after that date.

### REMINDER TO CANDIDATES

YOU MUST **NOT** BRING THIS PRELIMINARY MATERIAL  
WITH YOU WHEN YOU SIT THE EXAMINATION.  
A CLEAN COPY WILL BE MADE AVAILABLE.

### INFORMATION

The Preliminary Material is to be seen by teachers and candidates **only**, for use during preparation for the examination on Tuesday 14 June 2022. It **cannot** be used by anyone else for any other purpose, other than as stated in the instructions issued, until after the examination date has passed. It must **not** be provided to third parties.

## Electricity generation

The UK Government publishes statistics on how electricity is generated.

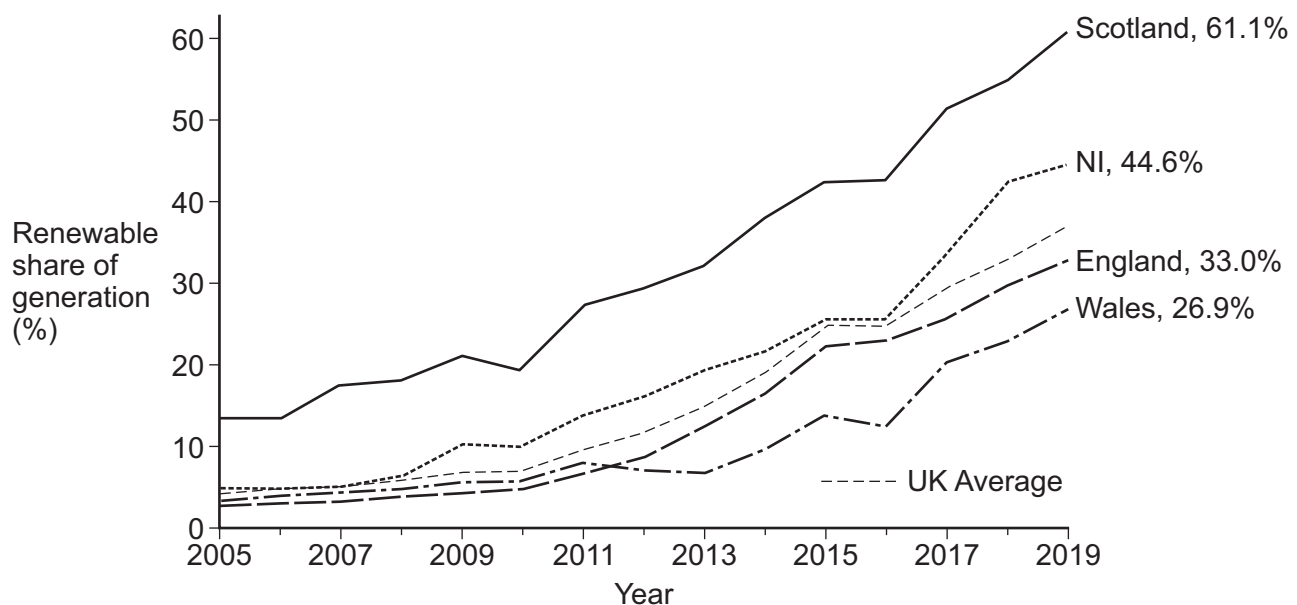
An article was published by the Department for Business, Energy & Industrial Strategy. An extract from the article is shown below.

### Electricity generation by fuel

In recent years, the closure of coal and gas fired power stations and an increase in the number of renewable generators shifted the UK's generation mix from fossil fuels towards renewables. As the fossil fuel share of generation fell across the UK, the renewable share rose from 24.5 per cent in 2016 to a record 37.1 per cent in 2019. This was driven by decreases in fossil fuel shares of generation in all UK nations since 2016. Notably, fossil fuel generation dropped by 45 per cent in Wales since 2016, with the winding down of operations at major Welsh coal plants, including Aberthaw B and Uskmouth resulting in coal generation falling 91 per cent from 2016 to 2019. Falls in fossil fuel generation were offset by a 45 per cent increase in UK renewable generation in the same period.

Renewable generators saw record levels of generation in 2019, accounting for 37.1 per cent of the UK's total (up 4.0 pp on 2018) as the UK expanded wind and bioenergy capacity, with generation up 13 per cent and 6.8 per cent respectively. In Scotland, 61.1 per cent of electricity was generated by renewable fuels in 2019, accounting for one quarter of the UK's renewable electricity. While Scotland remains the UK leader for renewable generation, all four nations saw record shares with renewable electricity accounting for 44.6 per cent, 33.0 per cent and 26.9 per cent of generation in Northern Ireland, England and Wales respectively. Chart 1 shows the renewable share of total electricity generation in each UK country from 2005 to 2019, in comparison to the UK average.

**Chart 1: Renewable share of electricity generation by country, 2005 to 2019**



The article included some data tables showing energy production in the four nations of the United Kingdom.

An extract from the data tables is shown below.

**Table 1: Generation of electricity by fuel in England, 2019**

<b>ELECTRICITY GENERATED (GWh)</b>		<b>England</b>
	<b>Fossil fuels</b>	110,221
within which	Coal	5,319
	Oil	1,262
	Gas	103,640
	<b>Nuclear</b>	43,958
	<b>Renewables</b>	78,105
within which	Hydro natural flow	129
	Wind	33,791
	Solar	11,228
	Shoreline wave and tidal	0
	Bioenergy	32,957
	<b>Other fuels</b>	4,511
	<b>Pumped storage</b>	0
<b>TOTAL ALL GENERATING COMPANIES</b>		236,794

**END OF PRELIMINARY MATERIAL**

---

**There is no preliminary material printed on this page**

**Copyright information**

For confidentiality purposes, all acknowledgements of third-party copyright material are published in a separate booklet. This booklet is published after each live examination series and is available for free download from [www.aqa.org.uk](http://www.aqa.org.uk).

Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright-holders may have been unsuccessful and AQA will be happy to rectify any omissions of acknowledgements. If you have any queries please contact the Copyright Team.

Copyright © 2022 AQA and its licensors. All rights reserved.

